

Tropical dairy genomics

Dairy genomics program of the Centre for Tropical Livestock Genetics and Health



The Centre for Tropical Livestock Genetics and Health is a strategic alliance of the Roslin Institute at the University of Edinburgh, Scotland's Rural College and the International Livestock Research Institute. It supports programs directed towards improving livestock productivity for the benefit of smallholder farmers in tropical climates. ctlgh.org

Aims

The program facilitates the application of genomics to dairy production in the tropics for: increased livestock productivity, enhanced livelihoods of the rural poor, increased food and nutritional security, and a more sustainable environment. This will be achieved by:

- Identifying key applications of genomics to dairy production in the tropics and advocating on these;
- Supporting the development of tools and methodological approaches to facilitate the above identified applications;
- Facilitating capacity development; and
- Partnering in research and resource mobilisation.

While the initial focus will be on dairy and dual-purpose cattle in sub-Saharan Africa, in the coming years the focus is expected to expand to other species and locations.

Identifying genomics applications for African dairy development

The program will lead strategic thinking as to which specific applications of genomics to dairy production in the tropics are both technically feasible and likely to have an impact on the livelihoods of the rural poor, and on wider food and nutritional security, and environmental sustainability. Such an approach is needed as genomics technologies developed for high-input livestock production systems (typical of the developed world) are often non-directly transferable to, or a priority for, other livestock production systems (such as the low- or medium-input systems typical of the developing world). Further, many genomics applications require a high level of associated phenomic information, which is rarely available in developing country livestock systems. The program will begin to tackle this challenging issue through a series of stakeholder engagements.

Enhanced tools for genomics research on cattle in Africa

A number of enabling tools for genomics research on cattle in Africa—which have been identified by the program—will be developed in the initial years of work, including:

- A genomics information resource for African cattle—collated and publically accessible genomic information on cattle breeds in Africa

- A low-cost genotyping platform for African cattle—such as customized SNP-chips that are genotyped through the private sector
- A smart tool for determining the breed composition of African cattle.

Capacity development

The program will help facilitate capacity building on tropical dairy genomics. Depending on the needs and preferences of stakeholders, these activities are likely to include exchange visits of scientists between institutes, short courses and workshops on specific issues, and the longer-term training of young scientists.

This activity is funded by the the Bill & Melinda Gates Foundation and the CGIAR Research Program on Livestock and Fish. It contributes to LiveGene—the global ILRI initiative delivering improved genetics to smallholder farmers.

Tropical dairy genomics R4D consortium

The program will explore the feasibility of, and potentially help initiate and sustain, an international research for development (R4D) consortium on tropical dairy genomics. By pooling resources—human, financial, capital—for a common goal around translating livestock genomic applications to benefit the rural poor, we believe such a consortium will accelerate the rate at which this impact is achieved.

Photo credits

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May, 2016